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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/576,572	01/29/2007	Gidcon Livingston	PO8909US00/DEJ	4120
881 7590 10/21/2008 STITES & HARBISON PLLC 1199 NORTH FAIRFAX STREET SUITE 900 ALEXANDRIA, VA 22314			EXAMINER PHAN, THANH S	
			ART UNIT 2833	PAPER NUMBER
			MAIL DATE 10/21/2008	DELIVERY MODE PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary

Application No.

10/576,572

Applicant(s)

LEVINGSTON, GIDEON

Examiner

THANH S. PHAN

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Period for Reply -- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☐ Responsive to communication(s) filed on ____.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 66-97 is/are pending in the application.
- 4a) Of the above claim(s) 66-76 and 93-97 is/are withdrawn from consideration.
- 5) ☐ Claim(s) ____ is/are allowed.
- 6) ☒ Claim(s) 77-85 and 87-92 is/are rejected.
- 7) ☒ Claim(s) 86 is/are objected to.
- 8) ☐ Claim(s) ____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on ____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. ____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☒ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-85/86)
Paper No(s)/Mail Date 10/12/06, 02/14/08
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date: ____
- 5) ☐ Notice of Informal Patent Application
- 6) ☐ Other: ____

DETAILED ACTION

Election/Restrictions

1. Applicant's election without traverse of claims 77-92 in the reply filed on 07/07/08 is acknowledged.

Claim Rejections - 35 USC § 103

2. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

3. Claims 77-85 and 87-92 rejected under 35 U.S.C. 103(a) as being unpatentable over Klinck [US 3,548,586] in view of Baur et al. [US 5,881,026].

Regarding claim 77, Klinck discloses a thermally compensating balance wheel [22] for use in conjunction with a thermally stable non-magnetic balance spring [50] in a mechanical oscillator system in a horological or other precision instrument, the balance wheel including components of two different thermal expansion [abstract], the components being arranged to give equipoise to the balance wheel and to cause a decrease in the moment of inertia of the balance wheel with an increase in temperature, wherein the decrease in the moment of

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inertia is arranged to compensate for changes in the elasticity of the balance spring caused by the increase in temperature.

Klinck discloses the claimed invention except for the composite balance wheel being non-magnetic.

Baur teaches a non-magnetic alloy suitable for many components of clocks and watches [abstract].

Since Klinck and Baur are both from the same field of endeavor, the purpose disclosed by Baur would have been recognized in the pertinent art of Klinck.

It would have been obvious to one of ordinary skill in the art at the time of the invention was made to use the material alloy as taught and suggested by Baur as the material of the balance wheel of Klinck for its high strength and ductility properties.

Regarding claim 78, Klinck and Baur disclose the claimed invention. Klinck further discloses wherein the components include a balance wheel arm [26] having one or more cross members [as shown in figure 1] and a rim [24] attached to or integral with said cross members.

Regarding claims 79-82, 84, 85, 87, Klinck and Baur disclose the claimed invention except for the thermal expansion and thermal elastic coefficient specifications are not set forth in the reference. However, it is known from Baur that the frequency of the balance wheel in timepiece is dependent on

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temperature variations which effect the thermoelastic coefficient of the wheel as well as the spring [column 1, lines 18-24]. Patentee further suggests at col 1, lines 63-67 that to correct for temperature changes, the thermoelastic coefficient and the coefficient of thermal expansion of the spring is adjusted in relation to the thermal expansion coefficient of the balance to compensate for these changes. Consequently, it would be obvious to one skilled in the art to select these coefficients in the balance wheel parts in such a way as to compensate for thermal variations of the system, as suggested and well know from Baur.

Regarding claims 83 and 88, Klinck and Baur disclose the claimed invention. Klinck further discloses wherein there are at least two appendages [portions wherein 24 and 26, 28 or 30 connected] to the rim in the form of non-magnetically sensitive timing weights.

Regarding claims 90 and 92, Klinck discloses a thermally compensating balance wheel [22] for use in conjunction with a thermally stable non-magnetic balance spring [50] in a mechanical oscillator system in a horological or other precision instrument, the balance wheel including components of two different thermal expansion [abstract], the components being arranged to give equipoise to the balance wheel and to cause a decrease in the moment of inertia of the balance wheel with an increase in temperature, wherein the decrease in the moment of inertia is arranged to compensate for changes in the elasticity of the balance spring caused by the increase in temperature, and a balance staff [40] formed integrally with the balance wheel [as shown in figure 1].

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Klinck discloses the claimed invention except for the composite balance wheel being non-magnetic.

Baur teaches a non-magnetic alloy suitable for many components of clocks and watches [abstract].

Since Klinck and Baur are both from the same field of endeavor, the purpose disclosed by Baur would have been recognized in the pertinent art of Klinck.

It would have been obvious to one of ordinary skill in the art at the time of the invention was made to use the material alloy as taught and suggested by Baur as the material of the balance wheel of Klinck for its high strength and ductility properties.

Regarding claim 91, Klinck and Baur disclose the claimed invention except for the balance wheel and the balance staff are formed of a ceramic material. Klinck teaches that it is known to construct a balance wheel out of different types of materials as set forth at column 2, lines 57-67]. It would have been obvious to one of ordinary skill in the art at the time of the invention was made to modify the balance wheel of Klinck and Baur with a ceramic material for its non-magnetic and wear-resistant properties.

Allowable Subject Matter

4. Claim 86 objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

The following is a statement of reasons for the indication of allowable subject matter: claim 86 recites, inter alia, "one or more appendages arranged on the cross member(s), said appendage(s) comprising a stem and an eccentric head on the stem, the stem being rotatably mounted in an aperture of the balance wheel such that it is rotatable about an axis parallel to the axis of rotation of the balance wheel, whereby the moment of inertia of the balance wheel can be fine tuned by turning of the eccentric head".

Conclusion

5. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. Kurita et al. [US 3,780,521]; Beyner [US 3,028,511]; Hansen et al. [US 2,184,668]; Tokoro et al. [US 2002/0167865] and Marechal [US 4,147,568] disclose similar inventive structure/method steps as the claimed invention.

6. Any inquiry concerning this communication or earlier communications from the examiner should be directed to THANH S. PHAN whose telephone number is (571)272-2109. The examiner can normally be reached on M-F 9:00-5:00.

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If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Renee Luebke can be reached on 571-272-2009. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

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/Edwin A. León/
Primary Examiner, Art Unit 2833